

WHAT IS CLAIMED IS:

1. A method for establishing point-to-point Internet communication comprising the steps of:

- (a) storing in a database a respective  
5 Internet Protocol (IP) address of a set of processing units that have an on-line status with respect to the Internet;  
(b) transmitting a query from a first processing unit to a connection server to determine the on-line status of a second processing unit; and  
10 (c) retrieving the IP address of the second unit from the database using the connection server, in response to the determination of a positive on-line status of the second processing unit, for establishing a point-to-point communication link between the first and second  
15 processing units through the Internet.

2. The method of claim 1 wherein the step (b) of transmitting the query includes the step of:

- (b1) transmitting the query to the connection  
20 server operatively connected to the database and the Internet; and

wherein the step (c) of retrieving the IP address includes the steps of:

- (c1) searching the database using the  
25 connection server;

(c2) determining the on-line status of the second processing unit;

(c3) retrieving the IP address of the second processing unit in response to the positive on-line status  
5 of the second processing unit; and

(c4) transmitting the IP address of the second processing unit to the first processing unit for establishing the point-to-point communication link between the first and second processing units through the Internet.  
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3. The method of claim 2 further comprising, after step (c2), the steps of:

(c5) generating an off-line message in response to a negative on-line status of the second  
15 processing unit; and

(c4) transmitting the off-line message to the first processing unit.

4. The method of claim 1 further comprising the  
20 step of:

(d) performing a secondary communication protocol in response to a non-responsive condition of the connection server.

5. The method of claim 4 wherein the step (d) of performing the secondary communication protocol includes the steps of:

(d1) transmitting an E-mail signal, including a first IP address, from the first processing unit;

(d2) processing the E-mail signal through the Internet to deliver the E-mail signal to the second processing unit; and

(d3) transmitting a second IP address to the first processing unit for establishing a point-to-point communication link between the first and second processing units through the Internet.

6. An apparatus comprising:

a first processing unit including:

a program stored in a memory for performing a point-to-point Internet protocol; and

a processor for executing the point-to-point Internet protocol program to generate a query to receive an Internet Protocol (IP) address of a second processing unit, for transmitting the query through the Internet to a connection server for determining an on-line status of a second processing unit to the connection server, and for establishing a point-to-point communication link to the second processing unit using the IP address.

<sup>6</sup>7. A system for point-to-point communications over the Internet comprising:

a database for storing a set of Internet Protocol (IP) addresses of at least one processing unit that  
5 has on-line status with respect to the Internet;

a first processing unit including:

a first program for performing a first point-to-point Internet protocol; and

a first processor for executing the  
10 first program and for transmitting a query;

a connection server, responsive to the query, for determining the on-line status of a second processing unit by searching the database, and for transmitting an on-line message to the first processing unit for establishing a  
15 point-to-point communication link between the first and second processing units through the Internet.

<sup>7</sup>8. The system of claim <sup>6</sup>7 wherein the connection server, responsive to a positive determination of the on-line status of the second processing unit, retrieves the  
20 respective IP address of the second processing unit from the database and transmits the on-line message, including the IP address, to the first processing unit; and

wherein the first processing unit establishes  
25 the point-to-point communication link between the first and

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second processing units through the Internet in response to receiving the IP address of the second processing unit from the connection server.

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<sup>8</sup>  
~~9~~. The system of claim <sup>6</sup>~~7~~ wherein the connection server, responsive to a negative determination of the on-line status of the second processing unit, generates an off-line message, and transmits the off-line message to the first processing unit.

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<sup>9</sup>  
~~10~~. The system of claim <sup>6</sup>~~7~~ wherein the connection server further includes a timer for timestamping IP addresses of the set of processing units having a positive on-line status with respect to the Internet.

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<sup>10</sup>  
~~11~~. The system of claim <sup>6</sup>~~7~~ further comprising:

a mail server for processing a E-mail signal through the Internet to deliver the E-mail to a specified second processing unit for establishing a point-to-point communication link between the first and second processing units through the Internet; and

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wherein the first processor of the first processing unit executes a second program to generate and transmit the E-mail signal, including a first IP address

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associated with the first processing unit, to the mail server.

- 11  
~~12~~. A method for establishing point-to-point
- 5 Internet communication comprising the steps of:
- (a) transmitting an E-mail signal, including a first Internet Protocol (IP) address, from a first processing unit;
  - (b) processing the E-mail signal through the
  - 10 Internet to deliver the E-mail signal to a second processing unit; and
  - (c) transmitting a second IP address to the first processing unit for establishing a point-to-point communication link between the first and second processing
  - 15 units through the Internet.

- 12  
~~13~~. The method of claim ~~12~~ further comprising the
- step of:

- (a1) generating the E-mail signal from the
- 20 first IP address corresponding to the first processing unit before the step (a) of transmitting the E-mail signal.

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<sup>13</sup>  
~~14~~. The method of claim <sup>11</sup>~~12~~ further comprising the step of:

(a1) generating the E-mail signal from a session number before the step (a) of transmitting the E-mail signal.  
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<sup>14</sup>  
~~15~~. The method of claim <sup>11</sup>~~12~~ wherein the step (b) of processing the E-mail signal further comprises the step of:

(b1) processing the E-mail signal using a mail server operatively connected to the second processing unit.  
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<sup>15</sup>  
~~16~~. The method of claim <sup>11</sup>~~12~~ further comprising the step of:

(b1) generating a connection signal including the second IP address at the second processing unit before the step (c) of transmitting the second IP address to the first processing unit; and  
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wherein the step (c) of transmitting the second IP address includes the step (c1) of transmitting the connection signal from the second processing unit to the first processing unit.  
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17. An apparatus comprising:

a first processing unit including:

a program stored in a memory for performing a point-to-point Internet protocol; and

5 a processor for executing the point-to-point Internet protocol program to generate an E-mail signal, including a first Internet Protocol (IP) address, and for transmitting the E-mail signal through the Internet to a second processing unit for establishing a point-to-point communication link to the first processing unit.

18. The apparatus of claim 17 wherein the processor is adapted to generate the E-mail signal from the first IP address corresponding to the first processing unit.

19. A system for point-to-point communications over the Internet comprising:

a first processing unit including:

20 a first program for performing a point-to-point Internet protocol; and

a first processor for executing the first program and for transmitting an E-mail signal, including a first Internet Protocol (IP) address; and

25 a mail server for processing the E-mail signal through the Internet to deliver the E-mail to a



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second processing unit for establishing a point-to-point communication link between the first and second processing units through the Internet.

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20. The system of claim 19 further comprising:  
the second processing unit including:

a second program for performing the point-to-point Internet protocol; and

10 a second processor for executing the second program and for receiving the E-mail signal from the mail server and for generating a connection signal, including a second IP address, for establishing the point-to-point communication link to the first processing unit.